

- USSR

DRAGAN, Ya. P., Otkor i Peredacha Informatsii, No 30, 1971, pp 16-24

where T is the period of correlation of the process, and the functions  $F_k(\cdot)$  are defined by the relations

$$B_k(u) = \int_{-\infty}^{\infty} e^{i u \lambda} dF_k(\lambda), \quad b(t, u) = \sum_{k=-\infty}^{\infty} B_k(u) e^{i k \frac{2\pi}{T} t}$$

A relation is found between the spectral expansion of such processes and the expansion of their stationary components.

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USSR

UDC: 519.2

DRAGAN, Ya. P.

"On the Spectral Properties of Periodic Correlated Random Processes"

Otbor i peredacha inform. Resp. mezhved. sb. (Selection and Transmission of Information. Republic Interdepartmental Collection), 1971, vyp. 30, pp 16-24 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4v84)

Translation: The author studies the properties of the instantaneous spectrum, the correlations of harmonic components and the variances of the given class of processes, and also finds the relation between their spectral decomposition and the decomposition of their stationary components. Author's abstract.

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USSR

UDC 519.2:621.391

DRAGAN, Ya.P. and MIKHAYLOVSKIY, V.N. (L'vov)

"On the Development of Signal Theory"

Kiev, Otkor i Peredacha Informatsii. Respublikanskiy Mezhvedomstvennyy Sbornik (Collection and Transmission of Information. Republic Interdepartmental Collection), Vypusk 26, "Naukova Dumka," 1970, pp 7-20

Abstract: This is the first part of a three-part series of articles which describes the development of a theory of signals as carriers of information and contrasts different mathematical models of signals and the problems they can be used to solve. The first part is devoted to models that are in the form of deterministic functions and stationary random processes; part two will be devoted to models in the form of specific types of nonstationary processes, and part three will review linear and nonlinear forms of signal conversions. In the present article, the main stages in the development of signal theory are given as: simple harmonic oscillation, complex deterministic functions, a model of a signal with a limited carrier of a spectrum, Gabor's model, a model in the form of an analytical signal, a stationary random process as a model of a signal, generalized random processes, a model in the form of a stationary random process

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USSR

UDC 519.2:621.391

DRAGAN. Ya.P. and MIKHAYLOVSKIY, V.N., Kiev, Otbor i Peredacha Informatsii. Respublikanskiy Mezhdomestvenny Sbornik (Collection and Transmission of Information. Republic Interdepartmental Collection), Vypusk 26, "Naukova Dumka," 1970, pp 7-20

with a limited spectrum, discrete approximations to Zheleznyov's expansion, and the Rice-Bunimovich model. The contributions of Fourier, Laplace, Bernoulli, Kotel'nikov, Wiener, Shannon, and others are noted.

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USSR

DRAGAN, Ya. P., L'vov

"Basis for a Stochastic Model of Rhythmic Phenomena"

Kiev, Otkor i Peredacha Informatsii, No 31, 1972, pp 21-27.

Abstract: The structural properties of periodically correlated random processes are studied, producing a basis for their selection as a general model of a rhythmic phenomenon, encompassing both particular cases of additive and multiplicative models. The information content of a dispersion and the mean of the class of processes mentioned are presented. The idea of the creation of a model as a basis for the development of methods of analysis of these processes and the use of periodically correlated random processes in the model was first suggested by the author. The mathematical expectation of the periodically correlated random processes is generally assumed to be other than zero.

1/1

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USSR

DRAGAN, Ya. P.

"Properties of Readings of Periodically Correlated Random Processes"

Otbor i Peredacha Inform. Resp. Mezhved. sb. [Selection and Transmission of Information, Republic Interdepartmental Collection], 1972, No 33, pp 9-12 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V222 by the author).

Translation: Based on the properties of random sequences, produced by readings through the period of correlation of values of periodically correlated random processes, formulas are suggested for asymptotically consistent unbiased estimates of the values of mathematical expectation and covariation function of the class of processes mentioned in the title on the basis of their realizations.

1/1

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USSR

VOYCHISHIN, K. S., DRAGAN, Ya. P.

"Exclusion of Rhythm From Periodically Correlated Random Processes"

Otbor i Peredacha Inform. Resp. Mezhved. sb. [Selection and Transmission of Information, Republic Interdepartmental Collection], 1972, No 33, pp 12-16 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V216 by the authors).

Translation: It is shown that known methods (selection of readings at a given time interval or averaging of values over a period) for elimination of rhythm from natural phenomena allow the rhythm to be eliminated from periodically correlated random processes as a general model of the rhythm of phenomena and that these methods are not equivalent within the framework of the model.

1/1

USSR

UDC 533.697

DRAGANOV, B. Kh.

"Electrical Modeling of the Subsonic Motion of a Compressible Fluid"

Nauch. tr. Ukr. s.-kh. akad. (Scientific Works of the Ukrainian Agricultural Academy), 1972, No. 54, pp 127-136 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B404)

Translation: The technique and research results of electric modeling of the flow of a medium in an inlet of a piston engine considering the compressibility factor are presented. A technique is proposed for taking into account the compressibility when using plane electrical conducting media. It is shown that the results obtained on electric models for the case of sub- and near-sonic motion of a compressible medium satisfactorily coincide with data on static injection of channels. 11 ref. Author's abstract.

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USSR

UDC 619:616.986.7-036.21:635

DRAGOMIR, A. V., and MATVEYEVA, A. A., Moldavian Republic Veterinary Laboratory

"Leptospira Carrier State in Animals"

Moscow, Veterinariya, No 10, 1971, pp 66-67

Abstract: In Kotov and Vulkanesht rayons of Moldavia, 6 Leptospira cultures (Hebdomadis serogroup) were isolated from 893 rodents (wood, field, and house mice and Norway rats) and 14 cultures (Hebdomadis serogroup) from 214 healthy cattle. Guinea pigs, white mice, rabbits, hamsters, and puppies inoculated with some of the Leptospira cultures developed clinical symptoms of the disease 3 to 5 days later. Leptospira cultures similar to the original ones were isolated from the heart and kidneys of the experimental animals at this time.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--INVESTIGATION OF MOLTEN MAGNESIA PORTLAND CEMENT -U-  
AUTHOR--(02)-VOROBIEVA, M.A., DRAGOI, I. D  
COUNTRY OF INFO--USSR  
SOURCE--EPITOANYAG 1970, 22(2), 74-80  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--MAGNESIUM OXIDE, CEMENT, ALUMINA  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0595 STEP NO--HU/0049/70/022/002/0074/0080  
CIRC ACCESSION NO--AP0119513  
UNCLASSIFIED

2/2

009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119513

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITIES OF PRODUCING HIGH MAGNESIA PORTLAND CEMENT WAS EXAMD. BY MELTING 7 CLINKER SAMPLES OF DIFFERENT COMPN. CONTG. 10 AND 15PERCENT MGO, RESP. AS RAW MATERIALS PURE  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ , AND  $\text{CaO}$  WERE USED. THE SAMPLES WERE BURNED IN A SPECIAL REVERBERATORY FURNACE WITH BUTANE MIXTS. THE CLINKERS WERE GROUND WITH 5PERCENT GYPSUM AND BURNED IN AN AUTOCLAVE FOR 4 HR AND THEIR VOL. STABILITY WAS EXAMD. AT 8 ATM. THE STRENGTHS OF 1:3 CEMENT SAND MIXTS. WERE DETD. THE EXPTS. SHOWED THAT THE MECH. STRENGTHS OF MOLTEN CEMENTS WERE HIGHER THAN THOSE OF SAMPLES MADE IN THE USUAL WAY. THE STRENGTH OF THE CEMENTS DECREASES WITH INCREASING MGO CONTENT. FAST COOLING WITH  $\text{H}_2\text{O}$  ENHANCES THE STRENGTH. BOTH VOL. STABILITY AND STRENGTH IMPROVE WITH INCREASING  $\text{CaO} \cdot \text{SiO}_2$  CONTENT. ALTERATIONS OF THE COMPN. OF THE ALUMINATE FERRITE PHASE INVOLVES SUBSTANTIAL CHANGES IN THE VOL. STABILITY OF THE CEMENTS AS IT INCREASES WITH INCREASING  $\text{Al}_2\text{O}_3$  CONTENT. !  
FACILITY: MENDELEJEV KEM.--TECHNOL. INTEZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.314.25

GABIDULIN, M. A., ~~DRAGONER, V. V.~~, GABIDULINA, G. A., Moscow Institute of Radio Engineering, Electronics and Automation

"A Phase Splitter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329551, Division G, filed 3 Aug 70, published 9 Feb 72, p 197

Translation: This Author's Certificate introduces a phase splitter which contains a reference oscillator, an integrating amplifier with controllable amplification factor, inverting amplifiers, a comparison circuit and an adder. As a distinguishing feature of the patent, the stability of the amplitudes and phase shifts of the output voltages is improved by connecting the first input of the adder, the input of the first inverting amplifier, the input of the integrating amplifier and the first input of the comparison circuit to the output of the reference oscillator. The first inverting amplifier is connected to the second input of the adder, and the second input of the comparison circuit is connected to the input of the second inverting amplifier, which is connected in turn to the third input of the

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USSR

GABIDULIN, M. A. et al., USSR Author's Certificate No 329551

adder, to the fourth input of the adder, and to the output of the amplifier with controllable amplification factor. One input of this amplifier is connected to the output of the comparison circuit, and the other input is connected to the output of the integrating amplifier.

2/2

1/2 016  
TITLE--A. COSMIC RADIATION MUON INTENSITY METER -U- UNCLASSIFIED PROCESSING DATE--16OCT70  
AUTHOR--DRAGUN, G.S.  
COUNTRY OF INFO--USSR  
SOURCE--PRIBORY I TEKHNIKA EKSPERIMENTA, JAN. FEB. 1970, P. 116-118  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS  
TOPIC TAGS--COSMIC RAY MEASUREMENT, MUON, SCINTILLATION COUNTER,  
COINCIDENCE COUNTING  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/1887 STEP NO--UR/0120/70/000/000/0116/0118  
CIRC ACCESSION NO--AP0108217  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A MUON INTENSITY METER DESIGNED TO MEASURE THE COSMIC RADIATION MUON FLUX UNDERGROUND AT DEPTHS DOWN TO 500 MWE. THE METER CONSTITUTES A SCINTILLATION TELESCOPE CONSISTING OF TWO IDENTICAL COINCIDENCE COUNTERS PLACED ONE ON TOP OF THE OTHER AT A DISTANCE OF 12 CM FROM EACH OTHER. THE AREA OF THE SCINTILLATOR OF EACH COUNTER IS EQUAL TO 0.25 SQ M. AT SEA LEVEL, THE METER RECORDS 1710 PLUS OR MINUS 41 PARTICLES PER MINUTE.  
FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 617.711/.713-002-092.9-02,751.49

POLOTSKIY, YU. YE., VASSER, N. R., and DRAGUNSKAYA, YE. M., Institute of Experimental Medicine, Academy of Sciences USSR, and Institute of Epidemiology and Microbiology imeni Pasteur, Leningrad

"Experimental Keratoconjunctivitis Caused by Enteropathogenic E. coli (0124, 0143, 028a28c, 0136, 0144), the Agents of Dysentery-like Diseases in Adults and Children "

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 76-80

Abstract: Morphological study was conducted of the eyes of guinea pigs infected with cultures of pathogenic E. coli (0124, 0143, 028a28c, 0136, 0144) that cause dysentery-like diseases in adults and children as well as keratoconjunctivitis in guinea pigs. These bacilli differ in some respects from another group of E. coli (011, 055, 026, 0127, 0128, 044, 086, 0119, 0125, 0126, 020) which cause enterocolitis in young children but not keratoconjunctivitis in guinea pigs. Most of the 96 strains of microorganisms under study of induced a purulent keratoconjunctivitis within 48 hours of injection into the conjunctiva. Like Shigellae, these strains penetrated into the cytoplasm of the epithelial cells of the conjunctiva and cornea, where they produced and destroyed the cells. Infection of guinea pigs with avirulent strains resulted in a less pronounced and slower developing conjunctivitis and

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USSR

POLOTSKIY, YU. YE., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 76-80

keratitis. Infection with shigellae produced a more severe and persistent keratoconjunctivitis. These microbes are apparently more resistant to the phagocytic activity of polymorphonuclear leukocytes than the less virulent E.coli 0124, 0143, 028a28c, 0136, and 0144.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--02JCT70  
TITLE--ENERGY LOSSES DURING THE PURIFICATION OF SUBSTANCES BY  
ELECTRODIFFUSION (DIFFUSION IN AN ELECTRIC FIELD) AND THE OPTIMUM DESIGN  
AUTHOR--(G2)--ORAKIN, S.I., MIKHAYLOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--TECH. OSN. KHIM. TEKHNOL. 1970, 4(2) 310-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--METAL DIFFUSION, ELECTRIC FIELD, METAL PURIFICATION, SODIUM,  
MERCURY, BISMUTH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/1915 STEP NO--UR/0455/70/004/002/0310/0314  
CIRC ACCESSION NO--AP0103244  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS SHOWN THEORETICALLY THAT EVEN UNDER STATIC CONDITIONS, ELECTRODIFFUSION MAY BE UTILIZED FOR THE PURIFICATION OF APPRECIABLE AMTS. OF LIQ. AT A MODERATE CONSUMPTION OF ENERGY, A. THE THEORY WAS APPLIED TO THE PURIFICATION OF NA FROM HG AND OF IN FROM BI. THE SP. ENERGY CONSUMPTION, A SUBSP, PASSED THROUGH A MIN. AS A FUNCTION OF THE POTENTIAL DIFFERECENE, DELTA E. FOR NA-HG AT 433DEGREESK, DELTA E SUBMIN. EQUALS 0.00813 V FOR A SUBSP EQUALS 23.3 KW HR-KG. FOR IN-BI, AT 166DEGREES, THE MIN. A SUBSP EQUALS 157 KW HR-KG. AT DELTA E SUBMIN. OF SIMILAR TO 0.06 V.

UNCLASSIFIED

Acc. Nr: **AP0047227**

Ref. Code: UR 0216

PRIMARY SOURCE: *Izvestiya Akademii Nauk SSSR, Seriya  
Biologicheskaya*, 1970, Nr 1, pp 129-133

Murzakov, B. G.; Dragunov, S. S.; Goggenkov, V. F.

APPLICATION OF THE PYROLYSIS — GAS CHROMATOGRAPHY TO THE  
INVESTIGATION OF THE CHEMICAL NATURE OF HUMIN ACIDS

Institute Microbiology, Academy of Sciences USSR

A microcell for pyrolysis of humin substances was constructed and suitable conditions for gaseous-liquid chromatography were chosen for the study of aromatic components of the molecules of humin acids of chernzem, peat and podzol soils.

Humin acids pyrolysates of the soil investigated for the most part contain similar aromatic compounds.

The results have shown only a quantitative difference in the relative contents of the said compounds.

111  
REEL/FRAME

19790729

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USSR

UDC: 518.5:681.3.06

DRAKH, A. M.

"Finding All Roots of a Polynomial With Real Coefficients by the Hitchcock Method"

V sb. Mashiny dlya inzh. raschetov (Machines for Computer Calculations--collection of works), vyp. 4, Kiev, 1971, pp 21-26 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V967)

[No abstract]

1/1

USSR

UDC: 517.946

MEL'NIK, R. S. and DRAKHLIN, Ye. Kh.

"Approximate Construction of the Green Function for Multidimensional Regions"

Sb. nauchn. tr. Perm. politekhn. in-t (Collection of Scientific Works of the Perm Polytechnical Institute) 1970, No. 70, pp 207-212 (from RZh-Matematika, No. 3, March 71, Abstract No. 3B242)

Translation: A method is proposed for the approximate construction of the Green function of the first boundary value problem for the Laplace operator in  $n$ -dimensional ( $n > 2$ ) regions, star-shaped with respect to the coordinate origin. The method of the work of S. I. Mel'nik is used (Izv. vyssh. uchebn. zavedeniy--Matematika, Kazan', 1967). Z. Sheftel'

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USSR:

UDC 621.762.002.5(088.8)

DZHAPARIDZE, P. N., DRAKIN, L. A., and MELIK-NUBAROV, T. T., Institute of Inorganic Chemistry and Electrochemistry, Academy of Sciences Georgian SSR

"Apparatus for Briquetting and Sintering of Preforms"

USSR Authors' Certificate No 275810, Cl. 80a, 25/10, (B 28-b5/02, B 30 b 11/14), filed 3 Feb 69, published 29 Oct 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G480)

Translation: The apparatus contains a feeder, cellular conveyer, pressing mechanism, and a heating apparatus. In order to make possible briquetting and sintering of preforms under pressure without the use of binders and for simplification of design, the apparatus is enclosed in an airtight chamber, which has air-lock arrangements for loading the material and for unloading the preforms, while the press is made in the form of a vibroplate, mounted above the cellular conveyer and connected by a rod to a vibrator located outside the chamber. One illustration.

1/1

1/2 -000 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--1,1,3,3-TETRACHLOROACETONE -U-  
AUTHOR--(051-BUGNOVA, L.V., RUDNEV, G.K., RADCHENKO, V.I., KHRISTICH, A.I.,  
DRAKINA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 264,385.  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--03MAR70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ACETONE, CHLORINATED ORGANIC COMPOUND, CHEMICAL PATENT,  
CHEMICAL SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/0841 STEP NO--UR/0482/7G/000/000/0000/0000  
CIRC ACCESSION NO--AA0136275  
UNCLASSIFIED



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009

UNCLASSIFIED

PROCESSING DATE--04DEC70

IRC ACCESSION NO--AA0136275

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 1,1,3, TRICHLOROACETONE IS PREPD. BY CHLORINATING ACETONE WITH GASEOUS CL IN THE PRESENCE OF A SUBSTITUTED AMINE CATALYST NR PRIME1 R PRIME2 R PRIME3 (R PRIME1 EQUALS H, ET, PH; PRIME2 EQUALS H, ME, ET; R PRIME3 EQUALS ME, ET, PH. THE CL IS FED INITIALLY AT A RATE OF 0.8-1 G-MIN (OPTIMUM 0.983 G-MIN) AND AT THE END AT A RATE OF 162 G-MIN FOR 1 G ACETONE. THE END PRODUCT IS SEPD. BY H SUB2 O EXTN. WITH THE RATIO 1:2 CHLORINATED PRODUCT, H SUB2 O AT 15-16DEGREES.

UNCLASSIFIED

AA0047004

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

2/70

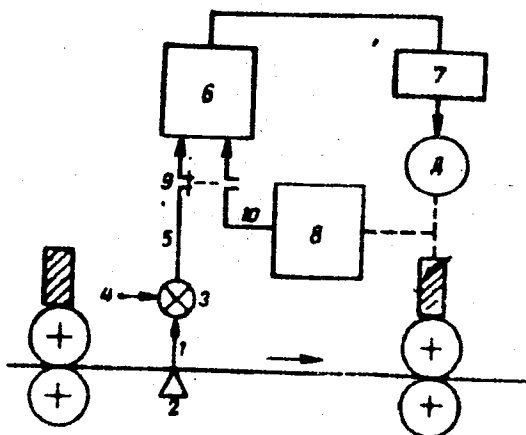
242096 REGULATION OF COLD ROLLED PLATE prevents loss of tension during the mill acceleration. The tension in the plate 1 is registered by a sensor 2 and is adjusted by an equaliser 3 in accordance with the input 4. The tension deviation signal 5 goes to a relay 6 which operates a tension mechanism drive 7 for a subsequent set of rolls. The mechanism 8 does not operate during the normal working speed with the tensioning screws set in position. The acceleration of the mill operates relay 9 and signal 10 representing the difference in the position of the tensioning screws is fed to the relay 6. The screws are rotated back to the initial position.

5.4.68 as 1231203/22-2 B.N. DRALYIN (19.9.69) Bul.  
15/25.4.69. Class 7a, Int. Cl. B 21b.

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19790428

AA0047004



72

19790429

USSR

UDC 621.311.25:531.781

DRANCHENKO, B. N., and PRIGOROVSKIY, N. I.

"Investigation of Stresses in Main Circulation Pipelines of the Novovoronezh Atomic Electric Power Station"

V Sb. "Issled. Temperatur. Napryazheniy" [In the Collection "Investigations of Thermal Stresses"], Moscow, "Nauka," 1972, pp 183-208 (from Referativnyy Zhurnal, No 10, Oct 72, 50. Yadernyye Reaktory. Single Issue. Abstract No 10.50.58)

Translation: Main results of tensometric investigations on models, test beds, and natural constructions are presented which were carried out when projecting and during the period of the nuclear reactor start-up at the atomic electric power plant. The pipeline characteristics in connection with the carried out investigation, the method of experimental investigation of deformations, stresses, and temperatures, and also the main investigation results under stationary and nonstationary operating conditions are examined. An analysis is presented of the main results of measurements in connection with a strength evaluation of pipeline components and characteristics of the stressed state of pipelines depending on operation conditions. Demonstrated applications of models and investigations of natural blocks made it possible to select the schema and construction of main pipelines when  
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USSR

DRANCHENKO, B. N., and PRIGOROVSKIY, N. I., V Sb. "Issled. Temperatur. Napryazheniy," "Nauka," 1972, pp 183-208

projecting with accounting for developing stresses. Two tables, fourteen illustrations, eight bibliographical references.

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USSR

UDC 546.821'.185:66.074.7

DRANITSINA, N. V., YEGOROV, YU. V., and FOMINYKH, V. YA., Ural  
Polytechnical Institute imeni S. M. Kirov

"Application Synthesis of Ionites Based on Titanium Phosphate"

Moscow, Neorganicheskiye Materialy, Vol 6, No 12, Dec 70, pp  
2178-2182

Abstract: Inorganic ion exchangers are synthesized on the basis of titanium phosphate using the method of application with ions of trivalent Ce, Fe, and Cr. Their composition is studied as a function of the conditions of their synthesis (pH of precipitation,  $P_2O_5:TiO_2$  ratio in initial solutions, influence of third component). An increase in specificity of the applied titanium phosphate to ions of trivalent elements is established. It is demonstrated that the titanium phosphate is resistant to the effects of corrosive media.

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USSR

UDC 546.821'.185:66.074.7

DRANITSINA, N. V., YEGOROV, YU. V., and FOMINYKH, V. YA., Ural Polytechnical Institute imeni S. M. Kirov

"Application Synthesis of Ionites Based on Titanium Phosphate"

Moscow, Neorganicheskiye Materialy, Vol 6, No 12, Dec 70, pp 2178-2182

Abstract: Inorganic ion exchangers are synthesized on the basis of titanium phosphate using the method of application with ions of trivalent Ce, Fe, and Cr. Their composition is studied as a function of the conditions of their synthesis (pH of precipitation,  $P_2O_5:TiO_2$  ratio in initial solutions, influence of third component). An increase in specificity of the applied titanium phosphate to ions of trivalent elements is established. It is demonstrated that the titanium phosphate is resistant to the effects of corrosive media.

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USSR

DZHELEPOV, B. S., DRANITSYNA, G. F.

UDC: 539.142

"Concerning the Difference Between Moments of Inertia of Interacting Rotational Bands"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1575-1580

Abstract: Coriolis interaction of two rotational bands with spin projections  $K$  and  $K \pm 1$  leads to repulsion of levels with identical spin  $I$ . The repulsion increases with greater spins, resulting in a shift of the bands relative to one another, the lower band being compressed while the upper is expanded. The experimentally determined inertial parameters of the interacting bands differ from the corresponding parameters of the non-interacting (initial) bands. The authors examine the dependence of the observed inertial parameters on the parameters of the initial bands, the relative position of the lower levels of the bands, and the force of the Coriolis interaction between the bands. Formulas are derived for interaction of bands with  $K_1 = \frac{1}{2}$  and  $K_2 = \frac{3}{2}$ . A study is made of the correlation between the difference of the inertial parameters for bands with  $\frac{1}{2}^-$  [510]

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USSR

DZHELEPOV, B. S., DRANITSYNA, G. F., Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1575-1580

and  $\frac{3}{2}$ -[512] and the difference of energies of states with  $I = \frac{3}{2}$  of these bands in different nuclei. It is found that the main contribution to the difference in inertial parameters is from interaction between these two bands, and that interaction of these two bands with others has a considerably weaker effect.

2/2

- 60 -

USSR

UDC 616.988.73-036.2(470.44)

RUMYANTSEVA, Ye. V., ZHELYABOVSKAYA, K. G., and DRANKIN, D. I., Saratovskaya Oblast Sanitary Epidemiological Station, Saratov Medical Institute

"Ornithosis in Saratovskaya Oblast"

Moscow, Sovetskaya Meditsina, No 9, Sep 70, pp 150-151

Abstract: No case of laboratory-confirmed ornithosis in humans was reported in Saratovskaya Oblast before 1967. As part of an epidemiological study conducted in the oblast from October 1966 to June 1967, 75 hospital patients whose symptoms suggested ornithosis were given serological and skin tests. The 75 subjects had been admitted with tentative diagnoses of typhoid, paratyphoid, pneumonia, influenza, and inflammation of the upper respiratory tract. Eight were diagnosed as having ornithosis (1 with the pneumonic form, 1 with the influenza type). Four of the eight had had occupational or other contacts with birds.

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1/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--LOW TEMPERATURE SURFACE MIGRATION OF TUNGSTEN ACTIVATED BY ION  
BOMBARDMENT -U-

AUTHOR--(02)-DRANOVA, ZH.I., MIKHAYLOVSKIY, I.M.

D

COUNTRY OF INFO--USSR

SOURCE--FIZIKA TVERDOGO TELA, VOL 12, JAN 1970, P 132-137

DATE PUBLISHED----JAN70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--TUNGSTEN, BIBLIOGRAPHY, HELIUM, ELECTRIC FIELD, FIELD EMISSION  
MICROSCOPE, ION BOMBARDMENT, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1984/0215

STEP NO--UR/0181/70/012/000/0132/0137

CIRC ACCESSION NO--AP0055011

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055011

ABSTRACT/EXTRACT--(U) GP-0--

ABSTRACT. APPLICATION OF FIELD EMISSION MICROSCOPY TO THE INVESTIGATION OF THE STRUCTURE AND TOPOGRAPHY OF ACICULAR TUNGSTEN MICROCRYSTALS BOMBARDED BY HELIUM IONS WITH ENERGIES RANGING FROM 500 TO 2500 EV. SPECIFICALLY STUDIED IS THE NATURE OF THE STRUCTURAL CHANGES OF THE SURFACE DUE TO ION BOMBARDMENT UNDER CONDITIONS WHERE THERMALLY ACTIVATED PROCESSES AND THEIR SURFACE DEFORMING EFFECTS ARE ELIMINATED. THIS MADE IT POSSIBLE TO RELATE THE OBSERVED EFFECTS TO THE PARAMETERS OF THE BOMBARDING ION FLUX AND THE FIELD PARAMETERS AT THE TUNGSTEN SURFACE. IT IS SHOWN THAT THE OBSERVED ACCENTUATION OF ACICULAR EMITTERS AND THE FORMATION OF SURFACE MICROROUGHNESSES UNDER THE EFFECT OF ION BOMBARDMENT IN STRONG ELECTRIC FIELDS CANNOT BE ATTRIBUTED TO CATHODE SPUTTERING ALONE, AND THAT THE BASIC MECHANISM OF THE SURFACE DEFORMATION OBSERVED IS PROBABLY SURFACE MIGRATION IN STRONG ELECTRIC FIELDS, WHICH IS ACTIVATED BY ION BOMBARDMENT AT LOW TEMPERATURES.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

GUL'KOM A. G., DRANOVSKAYA, L. M., and CHERNOKAN, V. F.

"Materials on the Distribution and Elimination of Epidermally Administered Hexachlorobutadiene From the Bodies of Experimental Rats"

V sb. Aktual'n. vopr. gigiyeny i epidemiol. (Current Problems of Hygiene and Epidemiology), Kishinev, Kartya Moldovenyaske," 1972, pp 63-64 (from RZh-Biologicheskaya Khimiya, No 11 Jun 73, Abstract No 11 F2068)

Translation: Three hours after the one-time epidermic administration of 43.3 mg/kg (0.01 LD<sub>50</sub>) of hexachlorobutadiene (I) to rats, the insecticide was detected in the blood and kidneys, after 6 hours -- in the brain and fatty tissue, and after 24 hours -- in the liver. I was not detected in adipose cellular tissue, in the blood, in the brain, and in kidneys after 3, 7, 14, and 14 days, respectively. I was detected in the urine after 12 and 24 hours. I gradually enters the body from the skin over a period of 7 days. In Chronic experiments (administered to the skin in doses of 2.1, 4.3 and 86. mg/kg for a period of 6 months), by the end of 4 months of administration I was found only in the skin and was absent from the blood, from internal organs and from the urine as well as from the spleen, from cardiac and skeletal muscles and from the abdominal wall and from the skin other than the point of administration. 1/1

USSR

UDC 577.1:615.7/9

GUL'KO, A. G., and DRANOVSKAYA, L. M.

"Content and Elimination of Orally Administered Hexachlorobutadiene From An Organism"

V sb. Aktual'n. vopr. gigiyeny i epidemiol. (Current Problems of Hygiene and Epidemiology), Kishinev, "Kartya Moldovenyaske," 1972, pp 61-62 (from RZh-Biologicheskaya khimiya, No 11, Jun 73, Abstract No 11 F2066)

Translation: When hexachlorobutadiene (I) was orally administered to rats one time, during the first 3 hours the concentration of hexachlorobutadiene was higher in the blood than in other tissues and organs, dropped after 6 hours, and was not detected after 3 days. In the liver, brain kidneys, and spleen the content of I reached the maximum by the end of the first day and was not detected in these tissues by the third day (in the brain traces of I were found by the seventh day). In the gastrointestinal tract the content of I declined from the first hour up to 7 days while I was detected in the urine after 6 hours. In subcritical experiments in which 0.1 LD<sub>50</sub> I (16.5 mg/kg) was administered 7, 16, 27 and 44 times, no pronounced relationship was observed between the content of I in the blood and tissues and the summary dose.

1/2

USSR

GUL'KO, A. G., and DRANOVSKAYA, L. M., Current Problems of Hygiene and Epidemiology, Kishinev, "Kartya Moldovenyaske," 1972, pp 61-62

Two weeks after I was withdrawn, traces of I were found only in the brain and in the urine. In animals that received I in different doses for one year (5 times a week), I was not detected in biosubstrates 3, 6, and 12 months after the administration of I.

2/2

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USSR

UDC 632.95

DRANOVSKAYA, L. M.

"Spectrophotometric Analysis of DDT and  $\gamma$ -Hexachlorocyclohexane in Products of Plant Origin"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov profilakt. zagryazneniya ini produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp 281-283 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N433)

Translation: In analyzing DDT in wheat, corn, flour and mixed feed, the pesticide is extracted, the extract is cleaned with  $H_2SO_4$ , concentrated and analyzed

spectrophotometrically at 236 nm. In analyzing  $\gamma$ -hexachlorocyclohexane, the extract is evaporated, the residue is reduced with Zn to  $C_6H_6$  and analyzed spectrophotometrically at 255 nm. When analyzing a mixture of DDT and hexachlorocyclohexane, the concentrated extract is analyzed for the DDT content; then the pesticides in the concentrate are separated by thin-layer chromatography method using n-hexane. Part of the sorbent layer containing hexachlorocyclohexane is eluated by hexane, and the latter is analyzed as described above. The sensitivity of the method is 0.02 mg/kg of DDT and 0.03-0.05 mg/kg of  $\gamma$ -hexachlorocyclohexane. The error in analyzing the DDT is 11.15%, and the error in analyzing the  $\gamma$ -hexachlorocyclohexane is 14-19%.

1/1

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USSR

UDC 616.981.42-085.37-097

CHERNYSHEVA, M. I., KNYAZEVA, E. N., and ~~DRANOVSKAYA, Ye. A.~~, Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, Moscow

"Comparative Characteristics of Immunoglobulins Arising in Response to Immunization by Various Brucella Antigens"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 90-93

Abstract: Guinea pigs were immunized with live Br. abortus 19-B4 vaccine, killed corpuscular vaccine, and Brucella wall antigens to reveal the nature of immunoglobulins produced in response. Serum from immunized animals was subjected to the agglutination reaction, the passive hemagglutination reaction, and cysteine sensitivity tests to detect antibodies and determine whether they are IgM or IgG. With live vaccine IgM-antibodies predominated within the 1st month and then disappeared, while IgG-antibodies were low in quantity during the 1st month but predominated thereafter (to 8 months). A single injection of killed virus produced IgM-antibodies only. A second injection 10 days later caused no changes in antibody production. A third injection caused short-term synthesis of IgG-antibodies. Finally, antigens isolated  
1/2

USSR

CHERNYSHEVA, M. I., et al., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 90-93

from Brucella cell wall were only capable of inducing insignificant synthesis of IgM-antibodies. IgG-antibodies were detected in insignificant quantities only on the 17th-30th days. Of 4 methods for obtaining wall antigens, ether-water extraction produced the strongest antigens. Thus production of specific antibodies of different types depends on the properties of the Brucella antigen and the multiplicity of infection.

2/2

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USSR

UDC 616.981.42-092.9-07:616.15-097.5

VERSHILOVA, P. A., CHERNYSHEVA, M. I., KNYAZEVA, E. N., and DRANOVSKAYA, Ye. A.,  
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical  
Sciences USSR, Moscow

"A Study of the Preventive and Opsonic Activity of IgM- and IgG-Antibodies in  
Experimental Brucellosis Infection"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973,  
pp 37-40

Abstract: The preventive activity of IgM- and IgG-antibodies obtained from  
guinea pigs 15 days to 18 months after infection by Br. melitensis was assessed  
by injecting whole serum and separate immunoglobulin fractions into white mice  
and subsequently infecting them with Br. melitensis. Opsonic activity was  
determined by the degree to which serum and immunoglobulin fractions activated  
neutrophils. Preventive activity of the immunoglobulin fractions followed the  
pattern of the quantity of antibodies, chiefly hemagglutinins, contained within  
them. Antibody quantity and preventive activity of the IgM fraction increased  
from the 15th day, peaked at 1-2 months and then dropped for the remaining  
period of observation, while those of the IgG fraction arose 20 days later  
than in the IgM fraction and persisted throughout the remaining period.

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USSR

VERSHILOVA, P. A., et al., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 37-40

Neutrophil activity of serum rose from 8-16% in the first 15 days to 26-40% after 2-6 months, and then dropped for the remaining period. While the IgM fraction displayed no opsonic activity, the activity of the IgG fraction followed the pattern of activity displayed by serum. Thus it is shown that IgG-antibodies dominate in protecting guinea pigs from brucellosis infection.

2/2

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USSR

UDC 619: 576.851.42

KAYTMAZOVA, YE. I., KURDINA, D. S., DRANOVSKAYA, YE. A., GREKOVA, N. A.,  
Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, and  
SAKHNOVSKIY, YU. G., State Scientific Control Institute of Veterinary Prepara-  
tions

"Characteristics of Brucella ovis cultures"

Moscow, Veterinariya, No 10, 1971, pp 44-46

Abstract: Comparative study of several Brucella ovis strains isolated from sick animals in the Soviet Union (Novgorod and Pskov oblasts) showed that they are identical in morphological and biological properties to cultures isolated in Australia, New Zealand, Argentina, and Bulgaria. All strains were similar in differential properties (high carbon dioxide requirement for growth, resistance to brucellosis T6 phage, oxidative metabolism) to Brucella melitensis. Infection of guinea pigs with these strains showed that they are low in virulence (only a dose of  $2 \cdot 10^9$  microbial cells induced disease). Histological examination revealed intensified lymphopoiesis and hyperplasia of reticular cells in the lymph nodes and spleen and the appearance of lymphoid nodules in the lungs. All the strains studied attacked the testes, impairing spermatogenesis.

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USSR

UDC 576.851.42.07

VERSHILOVA, P. A., DRANOVSKAYA, Ye. A., and KUSHNAREV, V. M., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, and Moscow Institute of Vaccines and Sera imeni Mechnikov

"A Supplementary Method of Identifying Bacteria Belonging to the Genus Brucella"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 98-101

Abstract: The spectrophotometric method is recommended for identification of both typical and atypical brucella strains. Like the classic brucellosis pathogens (*malitensis*, *abortus*, and *suis*), the atypical strains (*Br. suis* biotype 4, No 481, 03, 0, 11) collected from northern deer; *Br. neotomae* strains No 63/1, 66/2, and 65/197; *Br. ovis* No 64 isolated in the USSR and No 63/90 obtained from England; *Br. canis* No 666 obtained from the U.S.; and three strains isolated from mouse-like rodents in the USSR and presumed to be *Br. murium* No 1, 6, and 68) have distinct absorption peaks in the alpha and beta bands of cytochrome c. Characteristically, *Br. canis* isolated from deer and strains isolated from mouse-like rodents display shifts to the right in the alpha (554-560 mμ) and beta (524-530) absorption peaks of cytochrome c, while strains isolated from deer, *Br. neotomae*, and *Br. ovis* also have distinct cytochrome a absorption bands (620-630).

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USSR

VERSHILOVA, P. A., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 98-101

Other gram-negative bacteria (Salmonella, Escherichia, and Fr. tularensis) have different spectrophotograms in which cytochrome b absorption peaks predominate. It is recommended that the method be used for differential diagnosis of bacterial samples and that the presence of cytochrome c be specified in the taxonomic description of the genus Brucella.

2/2

- 30 -

USSR

UDC 632.95

LYALIKOV, Yu. S., and DRANOVSKAYA, L. M.

"Spectrophotometric Determination of DDT and  $\alpha$ -HCCH in Certain Products"

Izv. AN MoldSSR. Ser. biol. i khim. n. (News of the Academy of Sciences Moldavian SSR: Biological and Chemical Sciences Series), 1970, No 3, pp 69-73 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N548)

Translation: To determine DDT in sunflower seeds, sunflower oil and ground sunflower seeds, an extract is purified by the BRECHFIL'D and STORS [trans-literated from the Russian] method, evaporated (10 ml), and the optical density of the solution measured at 236 nm. This solution is then evaporated to 2 ml, and the concentrate chromatographed on a layer of silica gel. From part of the layer  $\alpha$ -HCCH (I) is washed out, dechlorinated, and the optical density of the solution measured at 255 nm. Sensitivity of DDT determination: 2 mcg; sensitivity of I determination: 5 mcg per sample.

1/1

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1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--NEUTRONS AND GAMMA QUANTA FROM THE TERNARY FISSION OF CALIFORNIUM  
252 -U-

AUTHOR--(05)-ADAMOV, V.M., DRAPCHINSKIY, L.V., KOVALENKO, S.S., PETRZHAK,  
K.A., TYUTYUGIN, I.I.  
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(5), 1001-5

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NEUTRON, GAMMA QUANTUM, NUCLEAR FISSION, CALIFORNIUM ISOTOPE,  
EXCITATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0578

STEP NO--UR/0367/70/011/005/1001/1005

CIRC ACCESSION NO--AP0137663

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137663

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FAST N AND GAMMA QUANTA ARE MEASURED FOR SPONTANEOUS FISSION OF PRIME252 CF WITH EMISSION OF LONG RANGE ALPHA PARTICLES, IN RELATION TO THEIR EMISSION FOR BINARY FISSION. FRAGMENTS WERE REGISTRATED WITH AN IONIZATION CHAMBER, ALPHA PARTICLES WITH A SURFACE BARRIER DETECTOR, N WITH A STILBENE CRYSTAL, AND GAMMA RAYS WITH A NAI(TL) CRYSTAL. THE N NO FOR THE TERNARY FISSION WAS 2.83 PLUS OR MINUS 0.07. THIS VALUE DIFFERS SLIGHTLY FROM THAT FOUND BY NARDI AND FRAENKEL (1968), 3.11 PLUS OR MINUS 0.06. THE NOS. AND SPECTRA OF THE GAMMA QUANTA ARE EQUAL IN BOTH BINARY AND TERNARY FISSION PROCESSES. THE N AND GAMMA QUANTA EMITTED WITH ENERGIES GREATER THAN 2 MEV DECREASE WITH RISE OF THE ALPHA PARTICLE ENERGY. IT IS ESTD. THAT THE FRAGMENT EXCITATION ENERGY IS 7 MEV AT THE INSTANT OF THE ALPHA PARTICLE EMISSION.

UNCLASSIFIED

USSR

UDC 669.13-15:620.178.3

DRAPKIN, B. M., ZHUKOV, A. A., and FIGUZOV, YU. V., Rybinsk  
Evening Technological Institute

"Laws Governing Change in the Elastic Properties of Pig Iron  
During Heat-Fatigue Fracture"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973,  
pp 135-137

Abstract: The authors have studied change in the elastic properties of pig irons with different structures in the process of heat-fatigue fracture. They showed that in all cases the moment of the appearance of the first cracks is represented by the value of the Young modulus which comprises 70-75% of the initial value.

The authors make the following conclusions with respect to their research. The initial period of heat-fatigue fracture of pig iron is characterized by the processes of defect pile-up of the crystal structure in the metal matrix  
1/2

USSR

DRAPKIN, B. M., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973, pp 135-137

of the pig iron, the processes taking place more intensely in pig iron with a ferrite matrix. They established that during heat cycling of pig iron the appearance of cracks is accompanied by a sharp drop in the elastic properties, in which case the modulus of elasticity  $E$  comprises 0.7-0.75 of the initial value. They state that it is necessary to make future investigations on the behavior of various materials under conditions of heat-cycle loading in order to expand these laws to other metals and alloys.

As illustration the authors have compiled a table which shows the chemical composition and characteristics of the pig iron. A graph gives the change of the tested pig irons with respect to the Young modulus in the process of heat cycling.

The article contains 1 illustration, 1 table, and 7 bibliographic references.

2/2

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USSR

UDC 62:001.57

VASIL'YEV, V. N., DRATSKIY, Yu. M., KOTOV, V. P., and KUKUSHKIN, Yu. A., Engineers

"Modeling an Automated System of Industrial Plant Control"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 8, 1972, pp 34-36

**Abstract:** This article is devoted to a description of the UMFA, a device for modeling the functions of an automatic factory control system. The purpose of the device is to prepare and acquaint the management personnel of factories with the basic functions and possibilities of automatic plant control with the idea of eventually introducing such control into the plant. It is also meant as a teaching device for junior and senior students of automated production control and to popularize new methods of factory control using economic-mathematical methods and computer techniques. A diagram of the device's external view is given as well as an operational block diagram. Some of its electronic circuits are also reproduced in schematic form. It uses magnetic tape for two-track recording: first, for a dictated text to accompany pictures for demonstration purposes; second, for control signals. Other details of the construction and operation of the device are given.

1/1

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USSR

UDC 517.947.43

DRAYTSUN, I. O., Institute of Mathematics, Academy of Sciences Ukrainian SSR

"Power Approximation to the Solution of the Heat Equation for a Moving Medium"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A -- Fiziko-Tekhnichni ta Matematichni Nauki, No 3, Mar 70, pp 202-206

Abstract: The article considers the following problem in the existence of convective heat exchange: Finding  $u(x, \tau)$  such that  $u(x, \tau)$  and  $\frac{\partial}{\partial x} u(x, \tau)$  are analytic on the closure of the parabolic region

$$\Omega = \{0 \leq x \leq l, \tau \geq 0\};$$

$\frac{\partial^2 u}{\partial x^2}$  and  $\frac{\partial u}{\partial \tau}$  are analytic in  $\Omega$ ; and the equation

$$q(x)c(u) \frac{\partial u}{\partial \tau} = \frac{\partial}{\partial x} \left[ K(u) \frac{\partial u}{\partial x} - q(x)c(u)uv(x, \tau) \right] + W(x, \tau) \quad (2)$$

and initial boundary conditions

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USSR

DRAYTSUN, I. O., Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A -- Fiziko-Tekhnichni ta Matematichni Nauki, No 3, Mar 70, pp 202-206

$$u(x, 0) = f(x), \quad (3)$$

$$\frac{\partial}{\partial x} u(0, \tau) = \varphi_1(\tau), \quad (4)$$

$$u(l, \tau) = \varphi_2(\tau) \quad (5)$$

are satisfied. A function which satisfies the equation with analytic coefficients is said to be the solution to initial boundary value problem (2)-(5). Functions  $u$  &  $\sigma$  are constructed which are an approximate solution to the problem. Under such conditions it can be said that there exists a single expansion

$$u(x, \tau) = \sum_{n=0}^{\infty} a_n(\tau)(x - l)^n$$

which gives the solution of the required differential equation for various moments  $\tau > 0$ .

The article also considers the case of a mobile region whose form changes with time. The expansion here is according to certain "instantaneous" power series. In both cases a series of independent nonlinear equations which are easily integrated is obtained.

2/2

USSR

UDC: 621.315.592

BROVKIN, Yu. N., DRAZHAN, A. V., and KOSTYLEV, S. A., Dnepropetrovsk Division of the Mechanics Institute

"Some Characteristics of the Prethreshold Field Distribution in Gunn Diodes"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1608-1609

Abstract: Results are given, in this brief communication, of investigations into the peculiarities of the formation of statistical domains in Gunn oscillators with random heterogeneities. The measurements made involved pulses of  $0.6 \mu s$  with a repetition rate of 20 Hz, using a point potential probe. The specimens were in the form of parallelepipeds, 200-300 microns long and with a cross section of  $0.3 \text{ mm}^2$ , made of monocrystalline GaAs, n-type. For each specimen, measurements were made of the potential distribution along the length of the specimen, the volt-ampere characteristic over the entire length of the specimen, and the local volt-ampere characteristics of individual specimen portions for the two bias polarities. Curves for the distributions and the characteristics

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USSR

BROVKIN, Yu. N., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1608-1609

are reproduced. The authors report observing strong-field regions in which the volt-ampere characteristic remained linear up to fields of 10-15 kV/cm and which are not described in the literature. They express their gratitude to R. G. Shabalina for her assistance in conducting the experiments.

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Graphite

USSR

UDC 541.135.5-153:547

ATANASOSKI, R. T., ~~DEAZHICH, D. M.~~ and DESPICH, A. R., Institute of Chemical, Technological, and Metallurgical Studies, Belgrade, Yugoslavia

"Capacitance of Electric Double Layer on Pyrolytic Graphite"

Moscow, Elektrokimiya, Vol 6, No 8, Aug 70, pp 1229-1231

Abstract: The influence of anisotropy of graphite crystals on the differential capacitance of the electric double layer of a graphite electrode upon contact with an inert electrolyte was studied at various electrode potentials. The experiments were performed on polycrystalline pyrolytic graphite with clear orientation of the crystallite. The mean deviation between crystallite axis and precipitation axis was  $21^{\circ}$ .

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--HEAT STABLE POLISHING ABRASIVE CLOTHS -U-

AUTHOR--(05)-POPENKOVA, Z.N., ZAYTSEVA, M.A., KOGAN, L.A., DREBENTSOVA,  
A.A., POLESHCHUK, I.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,752

REFERENCE--OTKRYTIYA, IZJBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ABRASIVE, CORUNDUM, LATEX, PATENT, POLYMER BINDER/(U)SKS30  
STYRENE RUBBER, (U)SVKH7 SYNTHETIC RUBBER, (U)FM3 RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1761

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0137001

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0137001

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEAT STABLE ABRASIVE POLISHING CLOTH CONSISTS OF A FIBER BASE FINISHED WITH SKS-30 AND SVKH-I LATEXES IN A 1:1 RATIO. ABRASIVE MATERIAL CONSISTING OF WHITE "MICROPOWDER" AND CR ELECTROCORUNDUM WITH A COARSE FRACTION CONTENT OF SMALLER THAN OR EQUAL TO 7PERCENT IS APPLIED TO THE BASE. SYNTHETIC RESIN FM-3 WITH A LOWERED STICKINESS OF 140-5 SEC IS USED AS A BINDER.

UNCLASSIFIED

USSR

UDC: 629.7.036.54:532.5

ALEMASOV, V. Ye., DREGALIN, A. F., TRUNOS, V. N.

"Thermodynamics of the Flow of a Reacting Gas Through a Nozzle With Distributed Heat Exchange and Friction"

Tr. Vses. nauchno-tekhn. konferentsii po termodinamike. Leningr. tekhnol. in-t kholodil'n. prom-sti (Transactions of the All-Union Scientific and Technical Conference on Thermodynamics. Leningrad Technological Institute of the Refrigeration Industry), Leningrad, 1970, pp 168-177 (from RZh-Aviatsionnyye i Raketnyye Dvigateli, No 10, Oct 70, Abstract No 10.34.111)

Translation: The parameters of a nozzle flow are calculated with the following assumptions: one-dimensional steady-state flow of a continuous compressible medium is considered; the components of the combustion products and the mixture of these components are ideal; the process of expansion in the nozzle is chemically and energetically balanced; there is no condensate in the products of combustion; the Mach number at the input to the chamber is zero; cooling is independent. Flow of the products of combustion of kerosene with liquid oxygen is calculated by way of example. Three illustrations, bibliography of eleven titles.

1/1

- 55 -

USSR

UDC: 621.455

D  
ALEMASOV, V. Ye., DREGALIN, A. F., KHAMIDULLIN, A. Z.

"Determining the Parameters of the Non-Isobaric Combustion Chamber of a Liquid Propellant Engine from the Data of Thermodynamic Calculation when Pressure is Constant"

Kazan', Izvestiya VUZov, Aviatsionnaya Tekhnika, No 2, 1970, pp 39-41

Abstract: For calculating the parameters of a nonisobaric cylindrical combustion chamber in a liquid propellant engine an approximate method is proposed which uses tables of thermodynamic characteristics for an isobaric engine. A comparison of the results of strict computation by a previously proposed method developed by the authors with the results of computation by the approximate method proposed in this paper showed that the approximate method is entirely suitable for engineering calculations. The authors thank G. B. Nudel'man for making the comparative calculations.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--SPIRITUOUS METHOD OF SERUMAL POLYGLOBULIN OBTENTION -U-

AUTHOR-(04)-DOVGALYEV, S.I., DANILOV, I.P., DREKOV, G.A., KORNEYCHIK, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 2, PP 26-28

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GAMMA GLOBULIN, DRUG PRODUCTION, HEMATOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1988/1655

STEP NO--UR/0477/70/000/002/0026/0028

CIRC ACCESSION NO--AP0106401

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0106401

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW SPIRITUOUS METHOD WAS  
OFFERED OF OBTAINING SERUMAL POLYGLOBULIN, DIFFERING FROM THE  
RIVANOLUOUS METHOD OF OBTAINING GAMMA GLOBULIN IN EXCLUDING THE  
BULKINESS OF MULTITUDE OF OPERATIONS; IT INCREASED THE APPARATUS OUTPUT.  
ITS PRODUCTION IS AVAILABLE TO ANY INSTITUTION OF BLOOD SERVICE.

UNCLASSIFIED



USSR

UDC: 539.411

VDOVYKIN, G. P., DREMIN, A. N., PERSHIN, S. V., and SHEVALEYEVSKIY, I. D.,  
Moscow

"Transformation of Meteorite Materials in Shock Compression Experiments at Pressures of 500 and 1000 kbar Set Up by Explosions"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp 535-541

Abstract: The authors conducted experiments on the shock compression (non-destructive) of Migeya carbonaceous chondrite at  $p = 500$  kbar and of the graphite of the Yardymlinskiy iron meteorite at  $p = 1000$  kbar. This was done in order to explain the transformations of meteorite substances under the effect of strong shock waves. Diamonds and microcrystals (less than one micron) were synthesized which are found in concretions with graphite. The diamonds and microcrystals were synthesized from Mineya carbonaceous chondrite and the graphite of the Yardymlinskiy iron meteorite. The synthetic diamond-graphite concretions are similar to those of meteorites with respect to morphology and phase composition. The results show that ureilites are secondary meteorites with respect to their origin which were formed from carbonaceous chondrites under the effect of strong shock waves in space.

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USSR

UDC 532.593

KOLDUNOV, S. A., SHVEDOV, K. K., and DREMIN, A. N.

"Decomposition of Porous Explosive Materials Under the Action of Shock Waves"

Novosibirsk, Fizika goreniya i vzryva, No 2, 1973, pp 295-304

Abstract: The reason for this investigation into the decomposition processes of explosives under the action of shock waves is that it is important for the solution of many basic problems in detonation theory and the practical use of explosives. A method is here proposed for investigation explosive transformations occurring behind the shock wave front. No preliminary assumptions are made, and the method is therefore valid for various explosives with any charge structure. The essence of the method is to obtain data on the energy release in the shock-compressed material by recording the gas dynamic changes behind the rectangular-profiled front of the shock wave at the interface between the inert material and the exploding material. Measurement of the massive velocity of this interface is achieved by electromagnetic means. A drawing of the experimental equipment is given together with a table of the shock wave characteristics. The explosives used were ammonium nitrate, TNT,  
1/2

USSR

KOLDUNOV, S. A., et al, Fizika gorenija i vzryva, No 2, 1973, pp 295-304

Tetryl, hexogen, and TEN; physical details of each are given. It is concluded that the energy yield immediately after the shock wave front is the consequence of local heating arising directly in the explosive, and that the presence of pores promotes local dissipation of the shock wave energy.

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DREMIN A. N.

IN THE COMMITTEE FOR INVENTIONS AND DISCOVERIES  
UNDER THE COUNCIL OF MINISTERS USSR

[Announcement, Moscow, Vsesoyuznaya Akademiya Nauk SSSR, Russian, No  
7, July 1973, pp 132-133]

The Committee has registered the following scientific  
discoveries:

V. P. KAZNACHEYEV, S. P. SHURIN and P. P. MINAYLOVA. "The ef-  
fect of intercellular distant electromagnetic interactions in  
a system of two tissue cultures."

Formulation of the discovery: Experimentally established  
was the previously unknown effect of distant intercellular elec-  
tromagnetic interactions between two tissue cultures during the  
action on one of them of factors of biological, chemical or phy-  
sical nature with characteristic reaction of the other (contact)  
culture in the form of a "mirror" cytopathic effect, which  
determines the cell system as a detector of modulation peculiar-  
ities of electromagnetic radiation.

Priority of Invention: 15 February 1966  
Certificate No 127. Application No 07-7097

By this discovery the paths of experimental evaluation of  
the role of quantum effects in biological systems are designated.  
It can help practice in finding means of effect on pathological  
processes by the coordination of noises arising in a photon chan-  
nel of information transmission.

S. M. BARANOV, "The effect of change of structure and proper-  
ties of alloys."

Formulation of the discovery: Experimentally established  
was the previously unknown effect of change of the structure and

ISS 60065  
18 Sept. 77

properties of alloys based on iron, caused by the presence of trace impurities of compounds containing oxygen of the type of silicon monoxide.

Priority of Invention: 7 June 1951

Certificate No 124. Application No OT-3717

Established was the identity of processes taking place during the crystallization of solutions of mineral salts in the presence of a surface-active colloidal admixture, and secondary crystallization of iron-based alloys containing an admixture of silicon monoxide. The discovered effect permits creating a new theory connecting the properties of steel and iron-based alloys. Scientific principles of new technological processes have also been elaborated which assure, in combination with rational alloying, obtaining alloys with prescribed properties.

G. A. ADAMOV, V. I. GOL'DANSKIY, T. N. IGNATOVICH, V. L. TAL'ROZE, P. A. YAKOVLEV, I. M. DOKALOV, A. N. DREMIN, and A. R. KIRKALOV. "The effect of formation of polymers in a shock wave."

Formulation of the discovery: Experimentally established was the previously unknown effect consisting in the fact that, as a result of passage of a shock wave through monomers present in a condensed phase polymers are formed, the characteristics of which depend on the amplitude of the shock wave.

Priority of Invention: 23 June 1964

Certificate No 125. Application No OT-3848

Investigation of this effect intensifies the understanding of processes taking place behind the front of a shock wave under the specific conditions of instantaneous unilateral immersion of a substance on the front. It substantially expands the area of application of shock waves and their technological use to obtain polymers whose characteristics can be varied by changing the conditions of effect of those waves.

YE. S. MASIKOVA, V. A. MOLCHANOV, D. D. ODITSOV, V. G. TEL'KOVSKIY, and V. M. CHICHKEROV. "The effect of anisotropy of ion-electron emission of single crystals."

Formulation of the discovery: Established was the previously unknown effect of anisotropy of the ion-electron emission of single crystals, consisting in reduction of the number of emitted electrons when the incident ions are directed along the crystallographic axes of the target.

USSR

UDC 662.215.1

TROFIMOV, V. S., TROFIMOVA, G. P., DREMIN, A. N., Moscow

"Shocked Air Electrical Conductivity as a Function of the Piston Material"

Novosibirsk, Fizika gorennya i vzryva, Vol 8, No 4, 1972, pp 490-501

Abstract: When using a streak camera to observe the exit of a shock wave from plexiglass into air the following phenomenon was detected: if a strip of black paper or copper foil was applied to the surface of the plexiglass, the corresponding section of the shock front glowed in the air appreciably more brightly than the adjacent sections. If the front exits into rarefied air (initial pressure  $p_0 = 10^{-2}$  mm Hg), the glow is not observed. The glow over the copper foil is much less than the glow over the black paper, but a detailed study was made of copper to demonstrate that the observed phenomenon was caused by the penetration into the air of foreign particles which shoot ahead in the microcumulation process (collapse of microscopic depressions on the foil surface) and are heated up during the process of heat exchange with the environment. This would lead to the expectation that the appearance of the metal vapors must increase the electrical conductivity of the shocked air, and a reduction in temperature must decrease it. It was found that the lifetime of the proposed copper particles must be much less than the transit time of the shock front to the electrodes. Thus, the reduction in conductivity of the air cannot be explained by cooling

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USSR

TROFIMOV, V. S., et al., Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 490-501

of the air by the microcumulative jets. An effort was made to relate the observed phenomenon to hydrodynamic effects which can occur on dynamic interaction of the foil with the plexiglass. The results of optical and electrical experiments with the hydrodynamic analysis lead to the conclusion of penetration of the copper into the shocked air layer on the one hand, and microcumulation is capable of carrying the copper only insignificant distances, on the other. Diffusion of copper into the shocked air layer, which decreases its conductivity (for example, by chemical bonding of the oxygen), was considered. It is probable that the cumulative jets exist only over the foil and only then can the intense formation of the copper vapors required for diffusion take place. With an increase in thickness of the coil the amount of evaporated copper increases. In rarefied air the copper particles cannot be heated sharply and did not evaporate. This would mean no effect of the copper on the conductivity of the air. This explanation is complicated by the negligible distance of diffusion of the copper in the time of the experiment. Thus, it is found that under the effect of a pressure gradient in the shock wave barodiffusion takes place [Ya. B. Zel'dovich, et al., Fizika udarnykh voln i vysokotemperaturnykh gidrodinamicheskikh yavleniy, Moscow, Nauka, 1966], that is, the shock front carries heavier copper atoms than the air molecules. In the presence of barodiffusion the shock front

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USSR

TROFIMOV, V. S., et al., Fizika gorenija i vzryva, Vol 8, No 4, 1972, pp 490-501

must have significant width decreasing as the amount of copper contained in it decreases which makes it essentially nonstationary. This explains the effect of the copper on the conductivity of the air.

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USSR

UDC 621.762.4.001

ADADUROV, G. A., BREUSOV, O. N., ~~DREMIN, A. N.~~, and DROBYSHEV, V. N., Institute of New Chemical Problems, Academy of Sciences USSR, Affiliate of Institute of Chemical Physics, Academy of Sciences USSR

"Influence of Shock Waves of Refractory Compounds. I. Nitrides of Niobium, Zirconium, Silicon, Chromium and Gallium"

Poroshkovaya Metallurgiya, No 3, Mar 71, pp 71-73

Abstract: The influence of shock compression on the nitrides of gallium, zirconium, silicon, chromium, and niobium was studied. It was demonstrated that all of the materials studied are converted from powders to strong bars with high micro-porosity under the influence of shock compression. It is established that gallium nitride decomposes into its elements, while zirconium and silicon nitrides undergo no visible changes, and the quality of the crystalline lattice of chromium nitride is significantly decreased. The hexagonal epsilon phase of niobium nitride is converted to the cubic delta phase by shock compression.

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USSR

UDC 621.762.4.001

ADADUROV, G. A., BREUSOV, O. N., DREMIN, A. N., and DROBYSHEV, V. N., Institute of New Chemical Problems, Academy of Sciences USSR, Affiliate of Institute of Chemical Physics, Academy of Sciences USSR

"Influence of Shock Waves of Refractory Compounds. I. Nitrides of Niobium, Zirconium, Silicon, Chromium and Gallium"

Poroshkovaya Metallurgiya, No 3, Mar 71, pp 71-73

Abstract: The influence of shock compression on the nitrides of gallium, zirconium, silicon, chromium, and niobium was studied. It was demonstrated that all of the materials studied are converted from powders to strong bars with high micro-porosity under the influence of shock compression. It is established that gallium nitride decomposes into its elements, while zirconium and silicon nitrides undergo no visible changes, and the quality of the crystalline lattice of chromium nitride is significantly decreased. The hexagonal epsilon phase of niobium nitride is converted to the cubic delta phase by shock compression.

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USSR

UDC 541.12.03

YAKUSHEVA, O. B., YAKUSHEV, V. V., and DREKIN, A. N., Moscow

"On the Possibility of Diffusion Processes Occurred During Shock Compression

Novosibirsk, Fizika Goreniya i Vzryva, Vol 7, No 2, Jun 71, pp 264—266

Abstract : An attempt was made of direct diffusion observation of thin metal films into transparent dielectrics by a described optical method by which the reflecting properties of a Cu-film sprayed in vacuum on Plexiglas supports were investigated. The shown photochronograms of the light reflection from the Cu-film did not show a notable decrease of the reflection factor by entering of the shock wave into the Cu-film and of its going through the dielectric during  $\sim 1 \mu\text{sec}$ . For the diffusion film thickness  $X = 500 \text{ \AA}$ , developed within a time of  $t = 10^{-6} \text{ sec}$ , the maximum value of the diffusion factor  $D$  is

$D_{\text{max}} = X^2/2t \approx 10^{-5} \text{ cm}^2/\text{sec}$ . Generally, the problem of the possibility of diffusion processes occurred in solids within times of shock compression has been left open. Two illustr., eight biblio. refs.

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Electrochemistry

USSR

UDC 541.11:541.124.7:541.8

YAKUSHEV, V. V., and DREMIN, A. N., Institute of Chemical Physics,  
Acad. Sc., USSR, Moscow

"Electrochemical Effects During Impact Compression of Dielectrics.  
Mechanism of the Electroconductivity of Impact Compressed Liquids"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 1, Jan 71, pp 97-101

Abstract: Experimental results are presented on the characteristics of the conductivity of liquid methanol, acetone, water, carbon tetrachloride, tin tetrachloride, silicon tetrachloride, methylmetacrylate, and dichloroethane occurring during impact compression. It has been shown that the emf of electrochemical nature forms on electrodes prepared from two different metals and immersed in any of the experimental liquids listed above. On the basis of the data analyzed, a conclusion was reached that the electroconductivity of these liquids which occurs during a dynamic compression up to the pressures of 100 Kbar is of an ionic character.

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USSR

UDC:534.222.2

ROZANOV, O. K., DREMIN, A. N., Moscow

"Elastic Wave in Thin-Walled Envelope and its Role in the Occurrence of Low-Speed Detonation"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 342-351

Abstract: The elastic wave propagating through the walls of a glass container is very significant for an understanding of the process of combustion of a liquid explosive contained in the container. This article presents a study of the pressure beyond the elastic wave in thin-walled glass envelopes, the rate at which the wave attenuates, the behavior of the cylindrical envelope under the influence of the elastic wave, and also an attempt to clarify its role in the process of low-speed detonation of the liquid contained in the envelope. The experimental results presented indicate that propagation of the elastic wave is independent of the course of the low-speed reaction process. This indicates that the question of the stability of the detonation mode must be left open, since the length of

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USSR

UDC:534.222.2

ROZANOV, O. K., DREMIN, A. N., Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 342-351

the cavitation zone should increase with time, and the nature of the behavior of the cavitation bubbles should change by the moment of arrival of the reaction zone. The authors investigated the propagation of this combustion mode in long glass tubes. The investigation did not reveal the mechanism of formation of cavitation bubbles under the influence of the elastic wave in the envelope.

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USSR

VOLKOV, Ye. I.; DREYN, I. M.; et al (Lebedev Physics Institute, USSR Academy of Sciences)

"Multiperipheral Theory on Hadron Interaction at High Energies;  $\pi\pi$ -Interaction"

Moscow, Yadernaya Fizika; February, 1973; pp 407-22

ABSTRACT: Properties of elastic and inelastic processes were considered on the basis of the Bethe-Salpeter equation. The kernel of the equation was chosen with regard for phenomenological considerations, and the free parameters were defined by the basic properties of the total cross sections. A solution of the equation with the above-mentioned kernel was obtained, and the basic properties of elastic scattering (diffraction cone width, parameters  $P$  and  $P'$ , and  $P'$ -trajectory) were found and proved to be in good agreement with experimental data. Certain characteristic properties of the corresponding inelastic processes were discussed.

The article includes 59 equations and three figures. There are 17 bibliographic references.

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--DUALITY AND MULTIPERIPHERAL PROCESSES -U-  
AUTHOR--(02)-DREMIN, I.M., ROYZEN, I.I.  
COUNTRY OF INFO--USSR  
SOURCE--PHYS. LETT.; 318: 71-4 (19JAN 1970)  
DATE PUBLISHED--19JAN70  
  
SUBJECT AREAS--PHYSICS, ATMOSPHERIC SCIENCES  
TOPIC TAGS--COSMIC RAY, DIFFERENTIAL CROSS SECTION, INELASTIC SCATTERING  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1982/0654 STEP NO--NE/0000/70/000/000/0071/0074  
CIRC ACCESSION NO--AP0052114  
UNCLASSIFIED



2/2 020

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0052114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMBINED USE OF THE FINITE ENERGY SUM RULES APPROACH FOR THE TREATMENT OF CROSS SECTIONS IN THE RESONANCE REGION AND OF THE BETHE SALPETER EQUATION FOR THE DESCRIPTION OF INELASTIC PROCESSES AT HIGH ENERGIES LEADS TO A RELATION BETWEEN THE LEADING REGGE TRAJECTORY AND OTHER TRAJECTORIES. AN UPPER LIMIT OF THE RESONANCE REGION APPEARS IN EQUATIONS AS A PARAMETER, WHICH, WITHIN THE FRAMEWORK OF THE BETHE SALPETER EQUATION, WAS PREVIOUSLY SHOWN TO BE OF THE ORDER OF A FIREBALL MASS. AN ESTIMATE OF ITS VALUE (WITH REGGE TRAJECTORIES ASSUMED TO BE KNOWN) SHOWS THAT IT COINCIDES WITH VALUES GIVEN BOTH BY FINITE ENERGY SUM RULES AND BY COSMIC RAY EXPERIMENTS.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DETERMINATION OF THE OVERLAP FUNCTION FROM ELASTIC PROTON PROTON  
SCATTERING -U-  
AUTHOR--(03)-ANDREYEV, I.V., DREMIN, I.M., SHTEYNBERG, D.N.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(2), 468-71  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--PROTON SCATTERING, ELASTIC SCATTERING, PARTICLE DIFFRACTION,  
CALCULATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1991/1039 STEP NO--UR/0367/70/011/002/0468/0471  
CIRC ACCESSION NO--AP0110729  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110729

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. BEHAVIOR OF THE OVERLAP FUNCTION OUTSIDE THE DIFFRACTION CONE IS CONSIDERED. IT IS SHOWN HOW THE ELASTIC SCATTERING NEAR THE SCATTERING CONE ( $1$  IS SMALLER THAN OR EQUAL TO  $T$  IS SMALLER TO OR EQUAL TO  $6$  (GEV-C) PRIME2) CAN PROVIDE INFORMATION ABOUT CHANGE OF THE GAUSSIAN ANGULAR DEPENDENCE CHARACTERISTICS FOR THE OVERLAP FUNCTION AT SMALL ANGLES. NUMERICAL CALC. OF THE OVERLAP FUNCTION IS PERFORMED BASED ON THE EXPTL. DATA ON ELASTIC PP SCATTERING AT ENERGIES OF 10.8 AND 19.2 GEV. FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--CORRESPONDENCE OF EQUATIONS OF THE MULTIPERIPHERAL AND MULTIREGGE  
ION THEORY OF INELASTIC PROCESSES -U-  
AUTHOR--DREMIN, I.M.  
COUNTRY OF INFO--USSR  
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(5), 272-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--INELASTIC INTERACTION, SCATTERING AMPLITUDE, CALCULATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/0997 STEP NO--UR/0386/70/011/005/0272/0277  
CIRC ACCESSION NO--AP0115018  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0115018

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATH. A SINGLE EQUATION IS GIVEN FOR INELASTIC PROCESSES, WHICH FOR THE MAIN PORTION OF THE PHASE VOL. BECOMES THE BETHE-SALPETER EQUATION FOR THE  $1\pi$  PION DIAGRAMS OF THE MULTIPERIPHERAL THEORY BUT WHICH, IN THE REGION OF APPLICABILITY OF THE MULTIREGGE ION THEORY (K. TER-MARTIROSYAN, 1963), BECOMES THE CHEW-GOLDBERGER-LOW EQUATION (PHYS. REV. LETT., 1969). BY GENERALIZING THE RESULTS OBTAINED EARLIER (D. CIAFALONI, ET AL., 1969) EQUATIONS WERE FOUND FOR THE PARTIAL AMPLITUDES FOR ANY VALUE OF  $T$ . FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.317.77

DREMLYUGA, V. Ya. and KUCHERENKO, G. N.

"Effect of Higher Harmonics of the Input Signal on the Measurement Error of Heterodyne Phase Meters"

V sb. Vopr. uluchsheniya tekhn. parametrov vypryanit. i tranzist. priborov (Problems of Improving the Technical Parameters of Rectifiers and Transistorized Devices--collection of works) Leningrad, 1970, pp 69-73 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A364)

Translation: A theoretical investigation of the problem is made. The basic conclusion is that the conversion multiplicity must be increased if the error is to be reduced. E. L.

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USSR

UDC: 621.316.727

YEVDOKIMOV, M. S., SKRIPNIK, Yu. A., DREMLYUGA, V. Ya., YANOVSKAYA, I. V., Institute of Electrodynamics, Academy of Sciences of the Ukrainian SSR

"A Device for Measuring the Nonlinearity of Phase Characteristics in Circular Phase Shifters"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 278871, Class 21, filed 21 April 1969, p 65

Abstract: This Author's Certificate introduces a device for measuring the nonlinearity of phase characteristics in circular phase shifters. The device contains resonance frequency multipliers, amplitude clippers, pulse shapers, a symmetric flip-flop with separate inputs and an output null indicator, all in conversion channels. As a distinguishing feature of the patent, precision is improved by connecting the phase shifter to be checked and the auxiliary phase shifter to the input of one of the channels of the phase measurement circuit through an automatic switch controlled by the voltage from a low frequency commutation oscillator. The output null indicator is connected to the output of the symmetric flip-flop through a low frequency filter, an AC amplifier, and a phase sensitive rectifier controlled by the voltage from the same commutation oscillator.

USSR

UDC 621.376.2

DREMLYUGA, V. YA.

"Wide-Band Multiplier"

Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics),  
vyp. 23, Kiev, Naukova Dumka Press, 1970, pp 59-61 (from RZh-Radiotekhnika,  
No 9 Sep 70, Abstract No 9A142)

Translation: This article contains a description of the operating principle of a wide-band multiplier (modulator) executed by the four-arm bridge system in the diagonal of which nonlinear elements are connected opposite to each other. The advantages of the given device over a ring modulator are large frequency overlap coefficient, purer output voltage spectrum, and absence of transformers. The bibliography has two entries.

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USSR

UDC 632.95



POLESHCHUK, V. D., LATYSHEV, V. I., KAMENNOV, N. A., DREMOVA, V. P., SMIRNOVA, S. N., STOLBOV, D. N.

"Repellent Activity of Diethylamide and Dibutylamide of Valeric Acid with Respect to Various Types of Ticks"

Sb. nauch. tr. Mosk. NII vaksii i syvorotok (Collection of Scientific Works of Moscow Scientific Research Institute of Vaccines and Serums), No 22, 1972, pp 209-211 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15N504)

Translation: According to field and laboratory tests, diethylamide and dibutylamide of valeric acid have high repellency with respect to the *Hyalomma plumbeum* plumbeum tick which carries hemorrhagic Crimean fever. The tissue treated with these repellents calculated at 7 grams/m<sup>2</sup> remained repellent for 5 days. For *Alectrolobius tholorani papillipes* these materials were not repellent. The five-day repellency of tissue for *Ixodes persulcatus* ticks, *Dermacentor pictus* and *D. marginatus* was achieved from a dibutylamide dose of 55-65 g/m<sup>2</sup>. The DETA had no repellency with respect to *N. p. plumbeum*, *A. th. papillipes* and *D. marginatus*, but tissue treated with DETA calculated at 40-50 g/m<sup>2</sup> remained repellent for 20 days for *I. persulcatus* and *D. pictus*.

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USSR

MARKINA, V. V., DEMOVA, V. P., and KAMENNOV, N. A.

"Prolongator of the Repellants From the Group of N,N-Substituted Alkylamides of Organic Acids"

USSR Author's certificate No 353727, filed 15 Feb 71, published 15 Nov 72 (from RZh-Khimiya, No 21, Nov 73, Abstract No 21N572P)

Translation: Complex cellulose esters such as acetopropionates and aceto-butyrate have been proposed as prolongators of the repellants of the group of N,N-substituted alkylamides of organic acids. The duration of the activity of a 40% DETA cream and of a 30% cream of a carboxide on an oil base with the mentioned prolongators is 5-8 hrs in the north and 6-10 hrs in the south.

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USSR

UDC 632.95

DREMOVA, V. P., NAUMOV, YU. A., and MOSEYKINA, N. F.

"Synthesis and Repellent Properties of Dialkylamides and Esters of Benzenesulfonic Acid"

Tp. BNII dezinfektsii i steriliz. (Collection of Works of All-Union Scientific Research Institute of Disinfection and Sterilization), Vol 2, Vyp 21, 1971, pp 44-45 (from Referativnyy Zhurnal -- Khimiya, Svochnyy Tom, No 19 (II), 1972, Abstract No 19N433 by T. A. Belyayeva)

Translation: In order to study the repellent properties of dialkylamides and esters of benzenesulfonic acid, the compounds with a general formula  $C_6H_5SO_2NRR'$  (I) (R and R' = alkyl, or  $RR'N$  = heteroring) and  $C_6H_5SO_3R''$  (II)

(R'' = alkyl) were synthesized. Heating of  $C_6H_5SO_2Cl$  with secondary amines in water-alkaline medium resulted in formation of I compounds. (R, R' or  $NRR'$

are given, as well as boiling point in  $^{\circ}C/mm$ , or boiling point in  $^{\circ}C$ ,  $n_D^{20}$ ).

Compounds I were characterized by: Et, Et, 40-1, -; Bu, Bu, 144/1, 1.5060; iso-Bu, iso-Bu, 56-7, -; piperidide, 90-1, -; hexamethylenimide, 35-6, 1.5470. The reaction of  $C_6H_5SO_2Cl$  with alcohols in pyridine at  $\sim 20^{\circ}C$  yielded

II (R'' are given, as well as boiling point in  $^{\circ}C/mm$  or boiling point in  $^{\circ}C$ , 1/2

USSR

DREMOVA, V. P., et al., Tp. BNII dezinfektsii i steriliz., Vol 2, Vyp 21, 1971, pp 44-45

<sup>20</sup>n D): Et, 122-3, 1.5090; Pr, 126-8, 1.5060; iso-Pr, 105-7, 1.5020. The repellent indices of I and II are given with respect to fleas and mosquitoes.

2/2

- 21 -

USSR

UDC 632.95

VASHKOV, V. I., DEDOV, V. S., ~~DREMOVA, V. P.~~, SMIRNOVA, S. N., OSIPIYAN, V. T.,  
MASLIY, L. K., KOCHANOVA, A. P., and MARKINA, V. V.

"Entomological and Toxicological Characteristics of a New Repellent --  
Carboxide"

Tr. VNII dezinfektsii i steriliz. (Works of All-Union Scientific Research  
Institute of Disinfection and Sterilization), 1971, vyp. 21, Vol 2, pp 30-37  
(from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N465 by T. A. Belyayeva)

Translation: Carboxide is an effective repellent for mosquitoes, midges, and  
some species of horseflies and mites. As creams and ointments are made,  
protective film-forming substances must be put in since carboxide is absorb-  
able through the skin. Refined carboxide, when used in its various forms  
(ointment, cream etc.), causes no lesions on exposed areas of the body and has  
no side effect on the human organism. Use of unrefined (industrial) carboxide  
to make various forms of the repellent can induce skin irritation.

1/1

USSR

UDC 632.95

NAUMOV, YU. A., DREMOVA, V. P., KOST, A. N., MENTUS, A. N., and SMIRNOVA, S. N.

"Substituted Amides, Esters of Pyromucic Acid, Furfuryl and Tetrahydrofurfuryl Esters of Carboxylic Acids and Their Repellent Activity"

Tr. VNII dezinfektsii i steriliz. (Works of All-Union Scientific Research Institute of Disinfection and Sterilization), 1971, vyp. 21, Vol 2, pp 24-30 (from RZh-Khimiya, No 16, 25 Aug 72, Abstract No 16N403 by T. K. YUDOVSKAYA)

Translation: Repellent properties are possessed by N,N-dialkylamides and esters of pyromucic acid (I acid), furfuryl esters (FE) and tetrahydrofurfuryl esters (TFE) of carboxylic acids. The reaction of furoyl chloride with secondary amines in  $C_5H_5N$  yields the following dialkylamides of I (shown are dialkyls, boiling point in  $^{\circ}C/mm$  or melting point in  $^{\circ}C$ ,  $n^{20}_D$ ):  $Et_2$ , 91-2/0.5, 1.5060;  $Pr_2$ , 97-8/0.5, 1.4972;  $Bu_2$ , 113-4/0.5, 1.4929;  $(iso-Bu)_2$ , 101-2/0.5, 1.4910;  $(CH_2)_5$ , 57-8, ---;  $(CH_2)_6$ , 116-7/0.5, 1.5450;  $BuPh$ , 83, ---. The following esters of I are synthesized from I and the corresponding alcohol in the presence of  $H_2SO_4$  or by the reaction of furoyl chloride with alkaline solutions of phenols (given hereinafter are the ester radical, boiling point in  $^{\circ}C/mm$  and  $n^{20}_D$  or melting point in  $^{\circ}C$ ):  $C_5H_{11}$ , 91-3/0.5, 1.4719;  $C_6H_{13}$ , 104-5/0.5, 1.4720;  $C_7H_{15}$ , 118-20/0.5, 1.4711;  $C_8H_{17}$ , 125-6/0.5, 1.4713;  $C_9H_{19}$ , 1/3

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119-20/0.5, 1.4688;  $C_{10}H_{21}$ , 136-7/0.5, 1.4665 ( $24^{\circ}$ ); cyclohexyl, 95-7/0.5, 1.5026 ( $30^{\circ}$ );  $PhCH_2$ , 136-7/0.5, 1.5552; Ph, 41.2, ---; o- $MeC_6H_4$ , 109-10/0.5, 1.5566, m- $MeC_6H_4$ , 37-8, ---; p- $MeC_6H_4$ , 58-9; o- $MeOC_6H_4$ , 75-6; m- $MeOCH_2C_6H_4$ , 137-8/0.5, 1.5640; p- $MeOC_6H_4$ , 85-6, ---; o- $ClC_6H_4$ , 53-4, ---; p- $ClC_6H_4$ , 81-2, ---; 2,4- $Cl_2C_6H_3$ , 83-4, ---. FEs and TFEs are synthesized by the reaction of acid chlorides with the corresponding alcohols in a medium of  $C_5H_5N$  (shown are acid, boiling point in  $^{\circ}C/mm$  and  $n_D^{20}$  first for FE, then for TFE): caproic acid, 110-3/0.8, 1.4580; 120-2/0.68, 1.4400; enanthic acid, 118-21/0.8, 1.4585, 135-7/0.8, 1.4428; caprylic acid, 128-30/0.8, 1.4580, 137-40/0.8, 1.4458; pelargonic acid, 118-20/0.5, 1.4590, 150-2/2, 1.4469; capric acid, 150-1/0.8, 1.4569, 138-40/0.8, 1.4480; pyromucic acid, 117-9/0.8, 1.5723, 124-6/0.8, 1.5038; benzoic acid, 146-7/0.8, 1.5423, 147-8/0.8, 1.5251; phenylacetic acid, 120-3/0.8, 1.4627; 135-6/0.8, 1.5129; phenoxycetic acid, 145-6/0.8, 1.5379, 170-2/0.8, 1.5196; m-toluic acid, 145-7/0.8, 1.5423, 156-7/0.8, 1.5213. The highest repellent activity for fleas *X. cheopis* is possessed by dialkylamides of I in a dose of 40 g/sq m (86-100%, duration of action 8-10 days). FEs of enanthic and benzoic acids showed repellent activity for 4-8 days. Under field

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conditions satisfactory repellence of mosquitos of the genus Aedes is afforded (when applied to the tissue in the proportion of 20 g/mg) by dipropylamide, piperidid and hexamethyleneimide of pyromucic acid and by TFEs of benzoic, phenosyacetic, enanthic and pelargonic acids [factor of repellent action for the first few days 73-87%, duration of action 6-10 days; activity referred to standard (DETA) was 0.5-0.8].

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"A Method of Testing Flea Repellents in the Laboratory"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 624-625

Abstract: A description is given of an olfactometer that permits the simultaneous testing of several repellents (or several concentrations of the same repellent), the standard, and the control. The instrument consists of several tubes enclosed in a cylinder on the bottom of which hungry fleas are placed. The tubes are set in a rotating drum. The repellent is applied to pieces of cloth 2 X 10 suspended from a hook in the center of one of the glass tubes. The fleas can leap onto both sides of the cloth, thus ensuring more reliable results. Application of the repellent at the rate of 5, 10, 20, or 40 g per m<sup>2</sup> makes it possible to determine acute repellent activity within 24 hours as well as the duration of effectiveness of each dose.

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"Sensitivity of Ixodid Ticks *Rhipicephallus* and *Hyalomma* to Repellants"

Leningrad, *Parazitologiya*, Vol 5, Vyp No 4, Jul/Aug 71, pp 357-360

Abstract: The repellent properties of a series of preparations with respect to *Rhipicephalus turanicus* and *H. detritum* ticks were studied. These ticks participate in the circulation of agents of diseases with natural-foci. The repellants studied included Carboxide, Cusol A, DETA, dibutylamide of valeric acid, as well as butylacetanilide and isoamylacetanilide, and other preparations and various mixtures. The most effective mixture was Carboxide, Cusol A, and dimethyl phthalate in a ratio of 1:1:2. Nevertheless adaptation of the ticks to the repellants was observed. Also, repellants, such as Carboxide and Cusol A and to a lesser extent DETA, had a paralyzing effect on the ticks, particularly during the first hours after application. No acaricidal effect of the preparations was noted. *Hyalomma dromedarii* and *H. asiaticum* ticks showed considerably less sensitivity to the repellants than did *H. detritum* ticks. The following order in the sensitivity level with respect to repellants

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was established: Rh. turanicus B. Pom. > H. asiaticum P. Sch. and E. Schl. > H. dromedarii Koch.

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"Mechanical Protection From Mosquito Bites by Means of Specially Woven Cloth"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 4,  
Jul/Aug 70. pp 458-462

Abstract: Jackets were made of cotton cloth with pore openings no more than 0.05 to 0.08 mm in diameter on the assumption that such openings would be too small to permit penetration of the mosquito's proboscis. Laboratory tests (insertion of an arm in a sleeve made from the cloth into a box containing mosquitoes) and field trials (wearing of the jackets by workers during the summer) showed that the material provided 100% protection against mosquitoes without irritating the skin. The cloth is wear- and tear-resistant, light, and launders well.

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